# Generative AI using KNIME

# Getting Started

1. Download KNIME Analytics Platform

2. Install the KNIME AI Extension (Labs)—this gives you the nodes for local and remote LLM connections.

The KNIME AI extension provides dedicated nodes for connecting to LLMs  and embedding models of both commercial and open-source providers; prompting and chatting with LLMs, creating and managing vector stores, as well as implementing your chatbots, RAG pipelines, and agents.

3. Choose a language model

4. Build your workflow: Select model → Prompt (via LLM Prompter or LLM Chat Prompter) → Process outputs

# Key Nodes in the AI Extension

**Authentication Nodes:**

- **Credentials Configuration:** Stores API keys securely
- **OpenAI Authenticator:** Authenticates with OpenAI services
- **Azure OpenAI Authenticator:** For Microsoft Azure integration
- **HuggingFace Authenticator:** For Hugging Face Hub models

**Model Connection Nodes:**

- **OpenAI LLM Selector:** Establishes connection with OpenAI LLM, allowing selection from available models
- **GPT4All LLM Connector:** For local model integration
- **Anthropic LLM Selector:** For Claude models

**Prompting Nodes:**

- **LLM Prompter:** Sends simple text prompts to a language model for one-shot prompting
- **Chat Model Prompter:** For conversational interactions
- **Agent Prompter:** Allows creation of agents with underlying LLMs and specialized tools

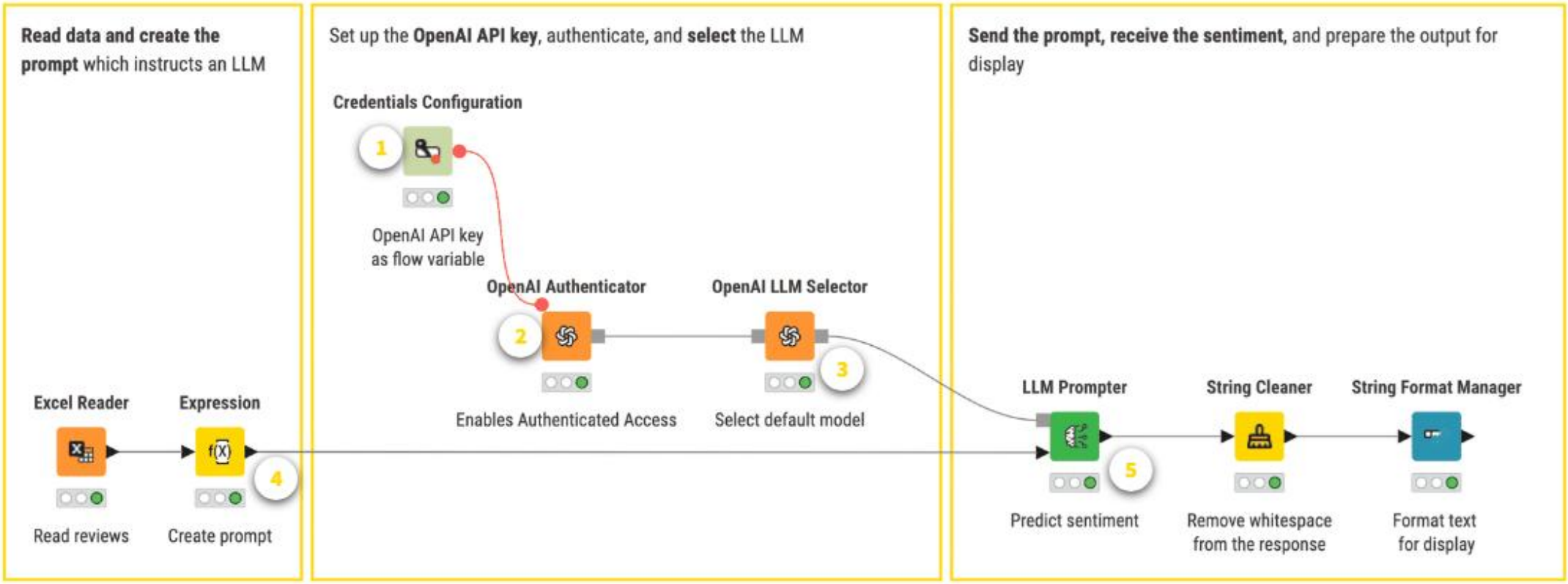
# 3 steps to leverage API-based LLMs

Independent of the provider, there are always 3 steps that you always need to perform:

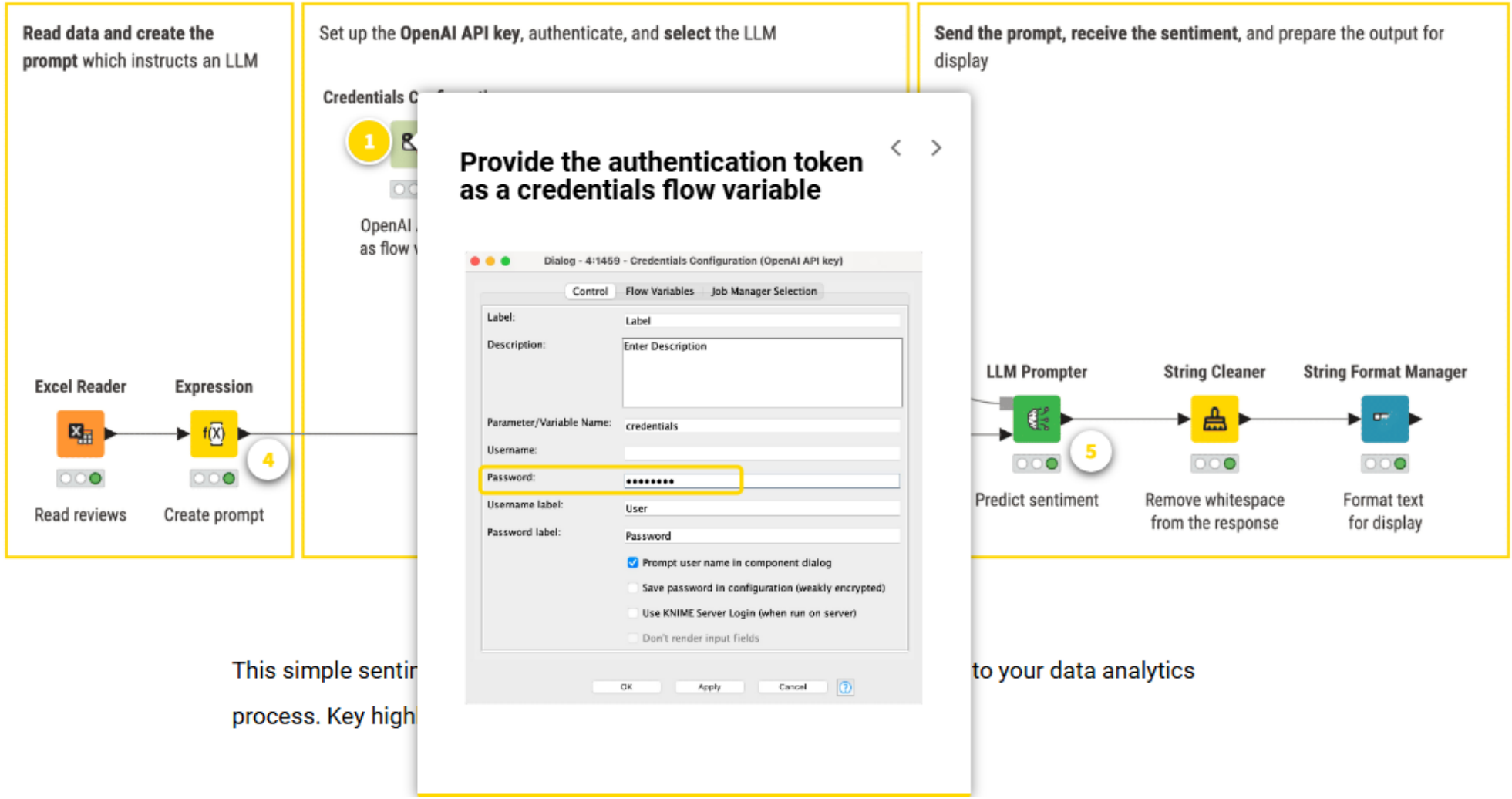
1. Authenticate against the provider & connect.
2. Select the model.
3. Prompt the model.

# Sentiment Analysis Workflow

The diagram below shows a simple sentiment analysis workflow, where an LLM is used to evaluate the sentiment of customer reviews.



# Provide Authentication Token

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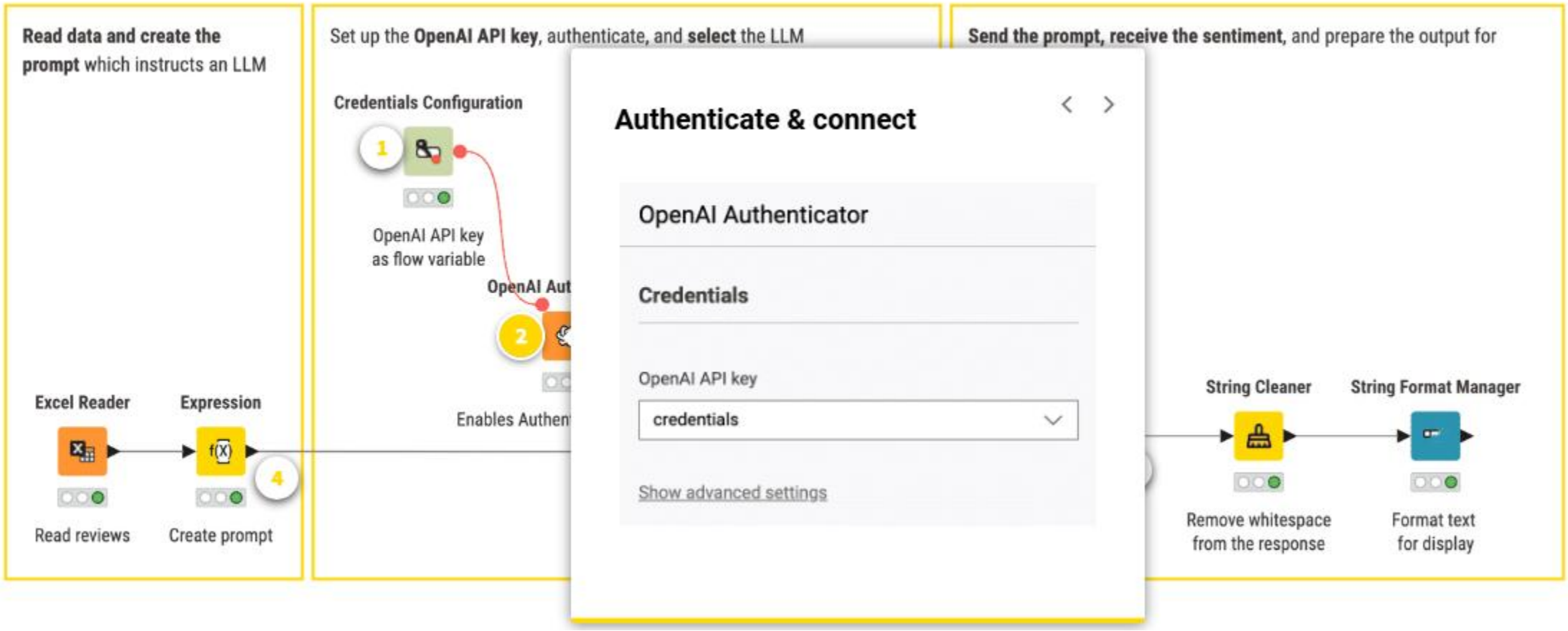
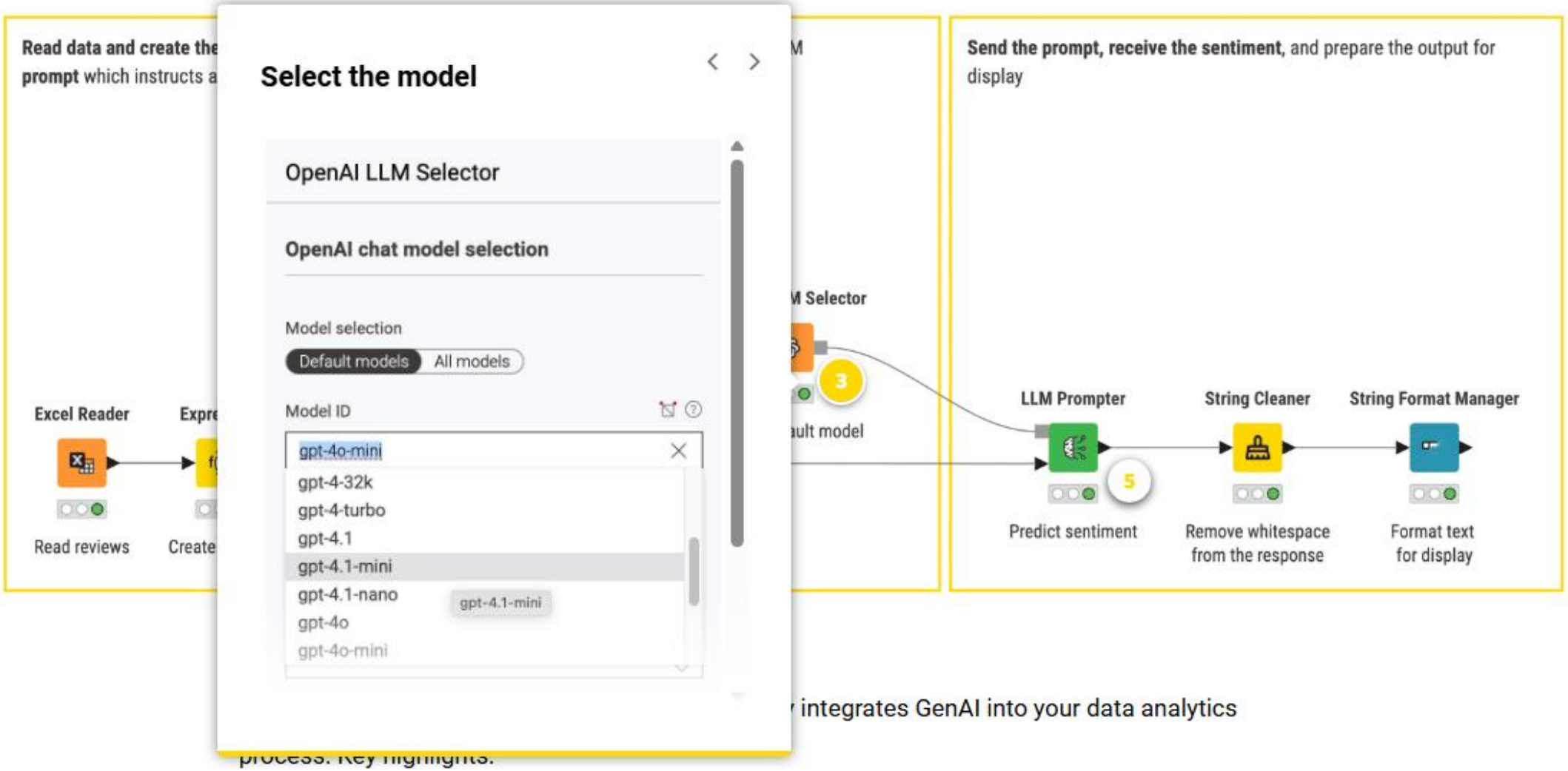
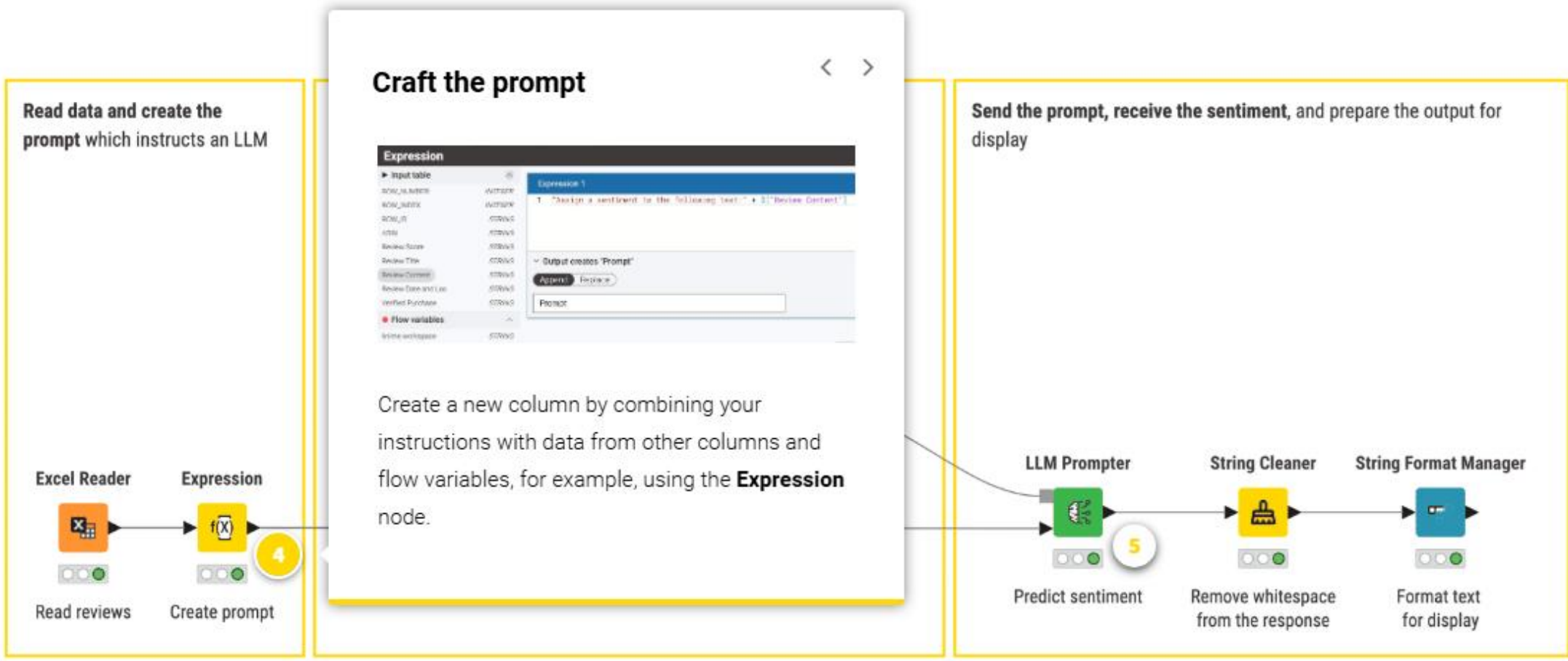
# Authenticate and Connect



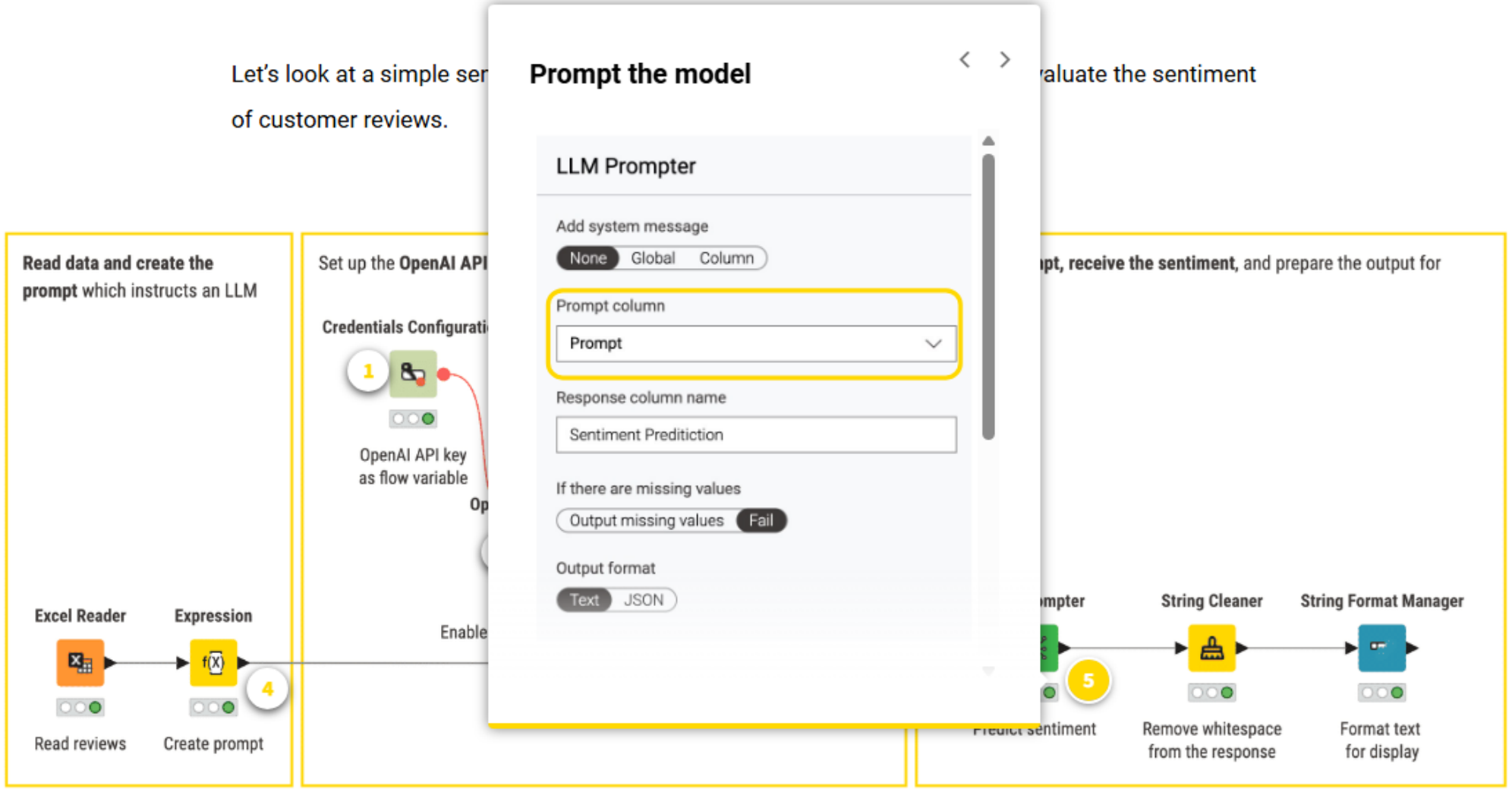
# Select the Model



# Craft the Prompt



# Prompt the Model

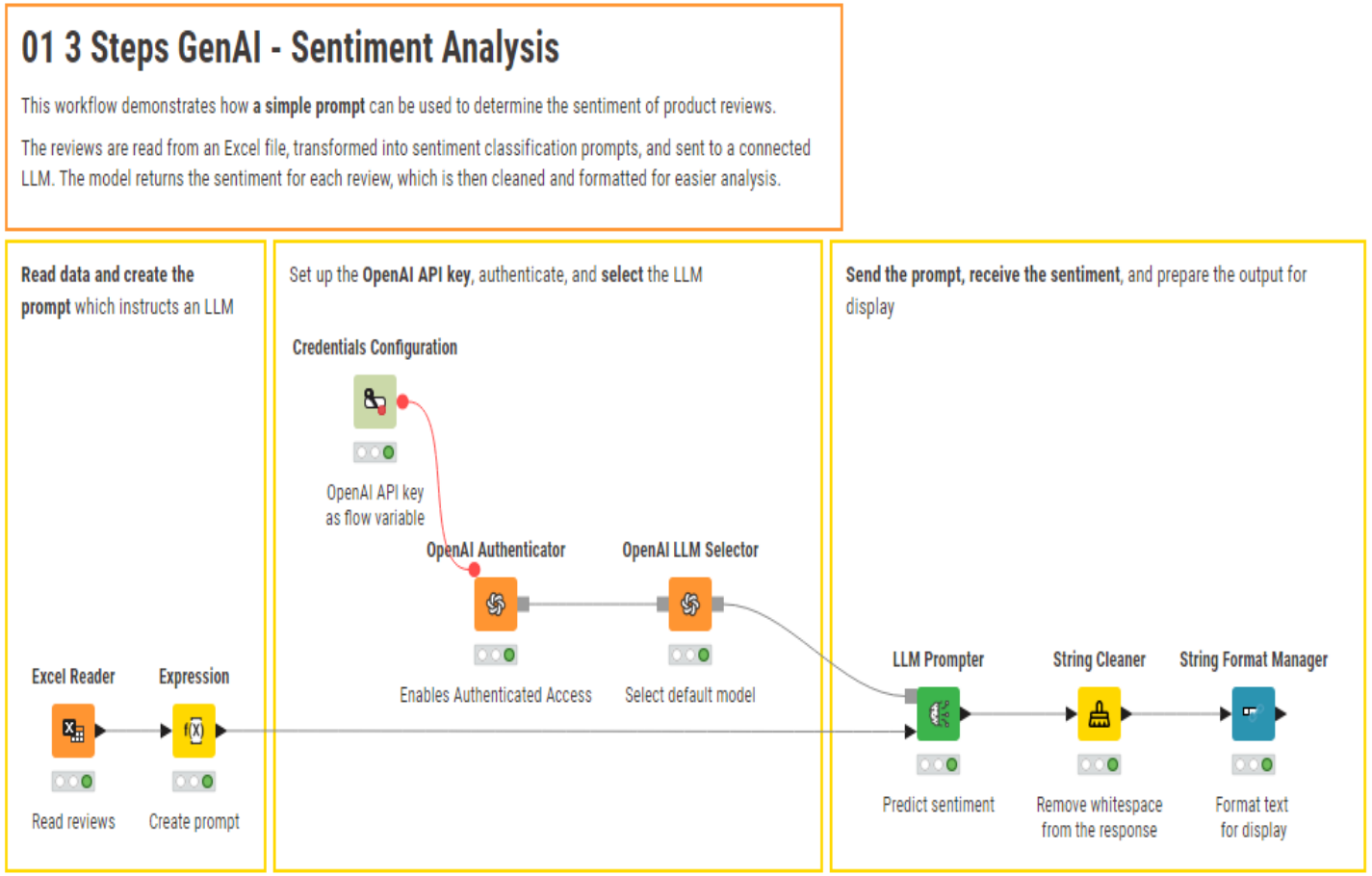


# Sentiment Analysis Workflow

This simple sentiment analysis workflow integrates GenAI into data analytics process.

**Key highlights:**

- **Dynamic prompting**. Prompts are automatically tailored per row by embedding data directly into them. In the example, the instruction stays the same while the review text varies row by row.
- **Row-wise processing**. The LLM analyzes review in each prompt independently and returns the response separately for each row.
- **Seamless integration**. Once sentiment is assigned by the LLM, you can proceed with classic data analysis, e.g., visualizing sentiment in a bar chart or tracking trends over time.
- The LLM Prompter processes each prompt independently, row by row, making it well-suited for GenAI-powered data analytics.



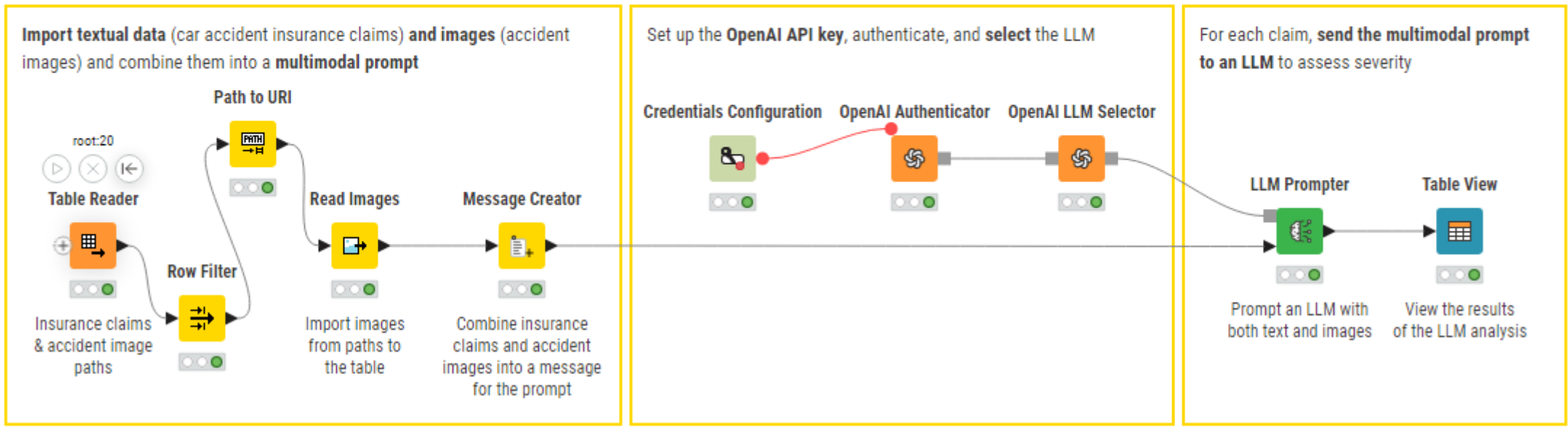

This workflow can be downloaded as following:

1. Download Course Workflows from VClass
2. Goto Generative AI Folder
3. Open 01 3 Steps GenAI workflow

# 02 Multimodal Prompting - Car Accident Severity Analysis

This workflow demonstrates how to **prompt an LLM using both text and images** to assess car accident severity.

Textual data from insurance claims and corresponding accident images are imported, combined into row-wise multimodal prompts, and sent to a connected LLM. The model then returns a severity assessment for each accident based on both the text and image inputs.




This workflow can be downloaded as following:

1. Download Course Workflows from BlackBoard
2. Goto Generative AI Folder
3. Open 02 Multimodal Prompting